

BIWIN TGQ203 SSD

The BIWIN TGQ203 SSD features a PCIe Gen 4 x4 interface and supports NVMe 2.0, delivering high-performance storage in capacities from 512 GB to 4 TB. Built for mission-critical industrial applications, it integrates a comprehensive set of reliability features, including wide-temperature operation (-40°C to +85°C), overvoltage and overcurrent protection, advanced data protection mechanisms, and S.M.A.R.T. health monitoring. Combining exceptional performance consistency with industrial-grade endurance, the TGQ203 SSD delivers secure, high-speed data storage and acceleration across diverse environments, including edge computing, intelligent surveillance, medical systems, rail transportation, energy automation, and AI training platforms.



Key Features

High Speed Operation, Consistent Performance

Featuring a PCIe Gen 4x4 interface and support for the NVMe 2.0, the TGQ203 SSD delivers sequential read/write speeds of up to 7,100/6,400 MB/s, providing the high-throughput performance required by edge AI applications. Leveraging TLC direct-write technology, it maintains consistent and reliable performance even in complex and demanding industrial environments.

High Capacity for Data-Intensive Applications

Built with advanced 3D TLC NAND and multi-layer stacking technology, the TGQ203 SSD is available in capacities from 512 GB up to 4 TB, providing ample storage for data-intensive workloads. It is particularly suited for applications requiring large-scale data retention, including video surveillance, sensor data logging, AI training, and other data-heavy industrial storage deployments.

Space-Efficient Design for Compact Systems

Featuring a single-sided component layout and a compact PCB design, the TGQ203 SSD is optimized for industrial systems with limited space. Its slim profile and small footprint streamline integration into a wide range of compact devices, allowing for greater design flexibility in space-constrained applications.

Engineered for Reliability in Harsh Environments

Built with carefully selected industrial-grade wide-temperature and anti-sulfuration components, the TGQ203 SSD achieves ANSI/ISA 71.04 G3 anti-sulfuration compliance and incorporates OCP (Over-Current Protection) and OVP (Over-Voltage Protection) to ensure dependable operation in demanding environments. Advanced reliability technologies, including internal RAID, SRAM ECC, and a 4K LDPC error-correction engine work together to safeguard data integrity and maintain long-term operational stability, minimizing the risk of uncorrectable errors and data loss.

Custom Options for Diverse Requirements

The TGQ203 SSD supports a wide range of hardware, firmware, and service-level customization options, including one-click secure erase, S.M.A.R.T. monitoring, conformal coating processes (including protective coating, anti-sulfuration treatment, and protective film coating), and interface speed configuration. These flexible customization capabilities enable the TGQ203 SSD to meet the unique demands of diverse industrial applications and deployment environments.

Technologies

Wide-Temperature
Operation

S.M.A.R.T.

Internal RAID

SRAM ECC

4K LDPC Error
Correction

Anti-Sulfuration

OVP/OCP

Applications



Industrial Automation



Edge Servers



Edge AI Systems



Data Acquisition Systems



Network Communication



Industrial PCs

Specifications

Model Name	TGQ203
Interface	PCIe Gen 4x4, NVMe 2.0
Form Factor	M.2 2280
Flash Type	Industrial 3D TLC
Firmware	TLC Direct Write
DRAM Cache	DRAM-less
Capacity	512 GB / 1 TB / 2 TB / 4 TB
Sequential Read (Up to)	7,100 MB/s
Sequential Write (Up to)	6,400 MB/s
Random Read 4K (Up to)	1050K IOPS
Random Write 4K (Up to)	1050K IOPS
Read Power Consumption (Max.)	2.7 / 4.0 / 5.6 / 4.6 W
Write Power Consumption (Max.)	1.9 / 3.8 / 4.9 / 4.5 W
Idle Power Consumption (Max.)	21 / 22 / 53 / 60 mW
Dimensions	80.00 x 22.00 x 2.15 mm
Operating Temperature	-40°C to + 85°C
Storage Temperature	-40°C to + 95°C
Endurance	3000 P/E cycles
MTBF	>2,000,000 hours
Certifications	CE, FCC, RoHS, HF, REACH, WEEE
TBW (Up to)	600 TB / 1200 TB / 2400 TB / 4800 TB
Warranty	3-Year Limited

Order Information

Capacity	Part Number	Power Loss Protection
512 GB	TG80I51223S2T	Firmware Based
1 TB	TG80I1T223S2T	Firmware Based
2 TB	TG80I2T223S2T	Firmware Based
4 TB	TG80I4T223S2T	Firmware Based

1. Tested by BIWIN labs. Actual performance may vary due to systems, devices, or environment.
2. Maintenance and future updates are required throughout the product life cycle. Specifications are subject to change without notice.
3. The pictures are for illustration only. Actual products may vary due to product enhancements or changes.
4. Not all products are sold in all regions of the world.
5. As used for storage capacity, one megabyte (MB) = one million bytes, one gigabyte (GB) = one billion bytes, and one terabyte (TB) = one trillion bytes. Total accessible capacity varies depending on the operating environment. As used for buffer or cache, one megabyte (MB) = 1,048,576 bytes. As used for transfer rate or interface, megabyte per second (MB/s) = one million bytes per second, and gigabyte per second (GB/s) = one billion bytes per second.
6. MTBF = Mean Time Between Failures based on internal testing using the Telcordia stress testing standard.
7. Please visit www.biwin technology.com for warranty details in your region.
8. For more information, please contact sales@biwin.com.cn.

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